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United States
Department of
Agriculture

Reserve
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Soil
Conservation
Service

Spokane,
Washington



in cooperation with

Department of Ecology
State of Washington

Water Supply Outlook for Washington

as of MAY 1, 1981 . . .



TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS OF THE
SNOWPACK NEAR MT. ST. HELENS VOLCANO, WASHINGTON, APRIL, 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



WATER SUPPLY OUTLOOK FOR WASHINGTON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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SPOKANE, WASHINGTON

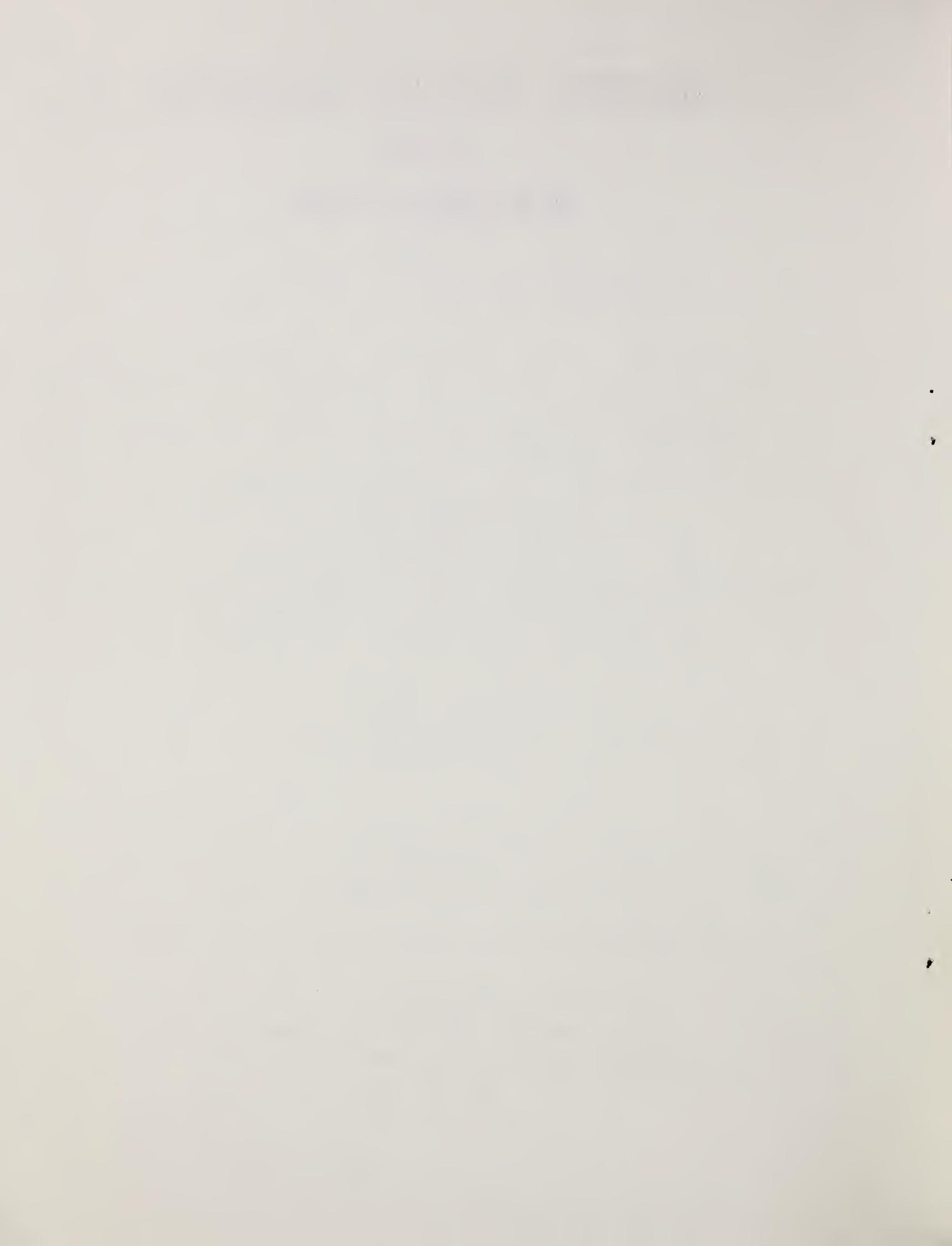
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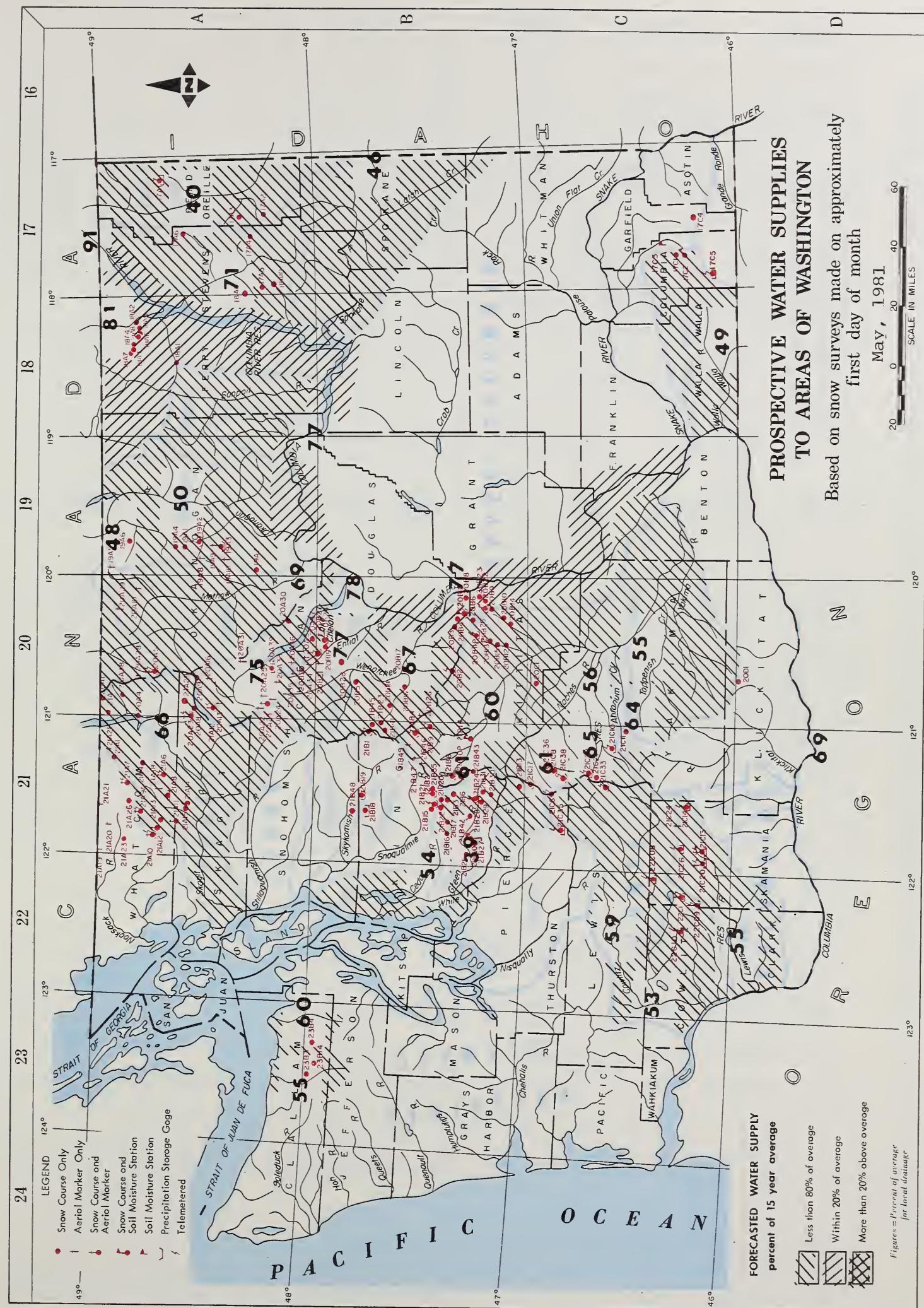
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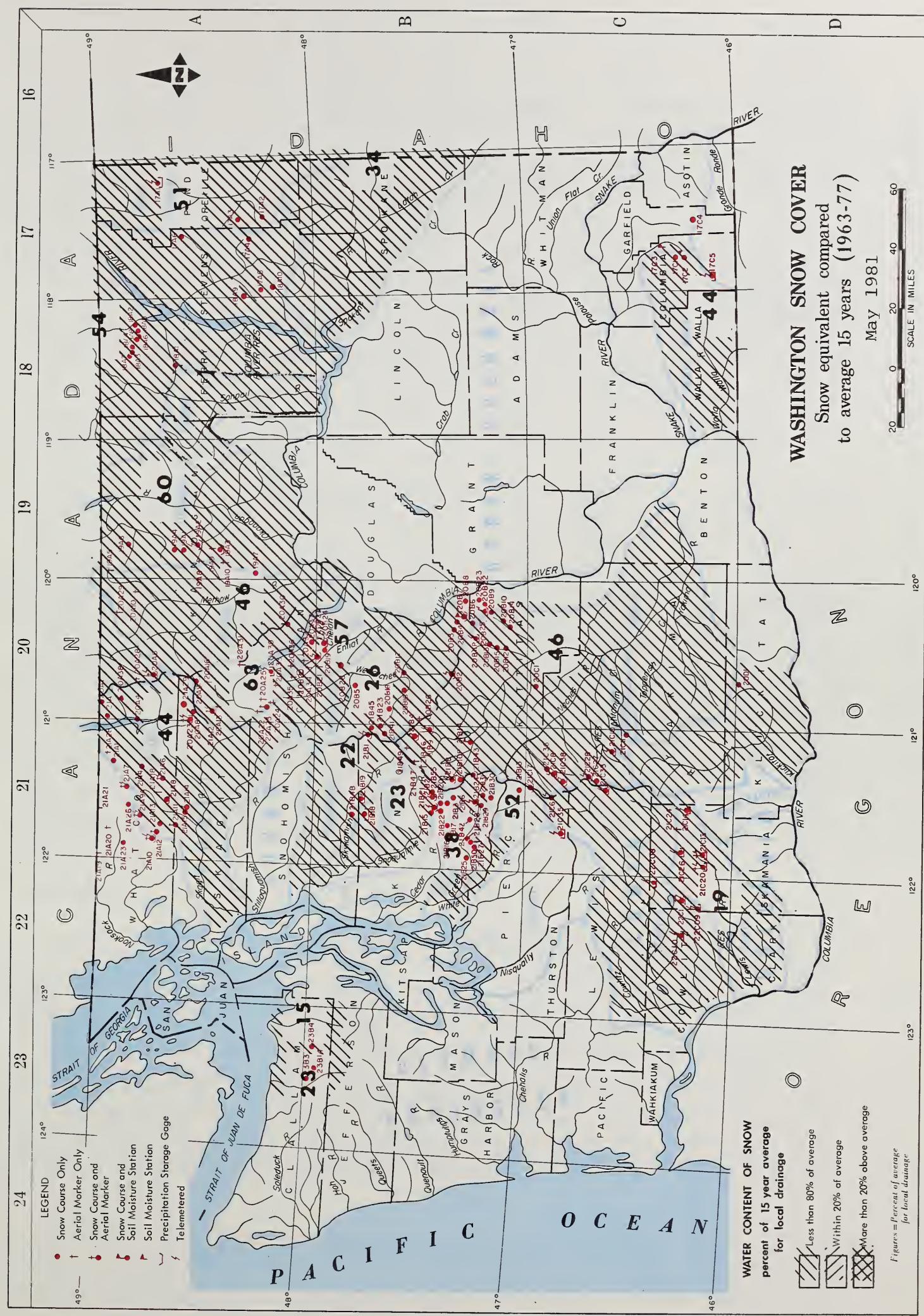
SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201





INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	NAME	FLV.	RANGE	ELEV.	NAME	FLV.	RANGE	ELEV.	NAME	FLV.	RANGE	ELEV.	NAME	FLV.	RANGE	ELEV.	NAME	FLV.	RANGE	ELEV.	
UPPER COLUMBIA DRAINAGE																						
Pend Oreille River	17A2	Oreille River	7	3IN	43E	5250	Colockum Creek Upper	20B22	11	20N	5300	Colockum Creek Lower	20B23	1	20N	4300	Lewis River	21A1	35N	12E	2200	
Boyer Mountain	17A3	Bunchgrass Meadow	7	44E	5000	5000	Squilchuck Creek	*				Plains of Abraham	21C2SP	8	9N	5E	Beaver Creek Trail	21A1	9N	12E	3680	
Winchester Creek	17A3	Scout-A-Visto	30	3IN	43E	2970	Beehive Springs	20B3	12	2IN	4400	Marble Mountain	22C0SP	26	8N	5E	Beaver Pass	21A1	9N	12E	6000	
Kettle River	18A2	4070	36	39N	36E	1450	Scout-A-Visto	20B4	18	2IN	4400	Spencer Meadow	22C1SP	35	9N	5E	Brown Top Park	20A4	34N	14E	4400	
Boulder Road	18A3	Cobin Creek	28	3IN	35E	4070	Jump-Off	20B8	34	2IN	4450	Surprise Lakes	21C0SP	16	8N	8E	Freezeout Creek Trail	20A1	14N	14E	3400	
Cow Creek	18A4	35E	36	39N	35E	3993	Sternilt Slide	20B7SP	30	2IN	4400	Granite Creek	21C1SP	14	7N	8E	Freezeout Meadows (New)	20A38	8N	8E	4250	
Crook Creek	18A5	Snow Caps Creek	3	3IN	38N	36E	2720	Upper Wheeler	*				Meadows Cabins	20A8	29	36N	16E	Granite Creek	21A29	25N	36N	5000
Summit G. S.	18A7	Snow Caps Trail	20	3IN	35E	4600	Ahtanum R. S.	21C11	24	12N	4450	Ryan Lake	20A7	19	40N	14E	Meadows Cabins	20A8	29	36N	16E	
Jard	17A6	Big Boulder Creek	19	3IN	42E	3215	Bumping Lake	21B9SP	35	2IN	4500	Coyote Pass	21C6	15	16N	10E	New Horomen Lake	20A7	19	40N	14E	
Carlson	18A9	Bumping Lake New	34	32IN	38E	2885	Bumping Lake New	21C8P	23	14E	5000	Firtail Peak	21C3SP	11	13N	11E	Thunder Basin	21A30	10	35N	14E	
Chewelah	17A5	Colockum Pass	11	32IN	41E	4925	Colockum Pass	21C38SP	9	12N	4600	Potato Hill	21C14SP	36	10N	10E	Rocky Creek	21A18P	27	38N	10E	
Stranger Mountain	17A5	Cooke Creek	26	3IN	38E	4900	Cooke Creek	20B10	17	18N	5370	Schreibers Meadow	21A12AP	20	37N	8E	Three Rivers Meadow	21A10A†	18	37N	8E	
Togo	18A10	Fish Lake	6	29N	38E	3370	Green Lake	21B4SP	28	24N	4123	S. F. Thunder Creek	21A14A	20	36N	9E	Three Mile Creek	21A13	22	37N	8E	
Sherman Creek Pass	19A1	Grouse Camp	19	3IN	35E	5350	High Creek	20B11SP	29	2IN	5385	Three Mile Creek	21A15	18	36N	9E	Bald Mountain	21A19a	19	39N	11E	
Clark	19A8a	Joe Lake	2	36N	42E	3215	Joe Lake	20B12	34	2IN	5385	Watson Lakes	21A8P	25	37N	9E	Glacier Creek	21A20A	7	40N	7E	
Muckamuck	19A9a	Lake Cle Elum	20	3IN	24E	6750	Lake Cle Elum	21B4a	22	23N	5290	Panorama New	21A23	9-10	38N	8E	Canyon	21A23	20	37N	8E	
Mutton Creek No. 1	19A4	Manosach	19	37N	24E	6000	Manosach	20C1	24	12N	5290	Twin Lakes	21A26	17	39N	9E	Elwha River	21A21a	16	40N	9E	
Mutton Creek No. 2	19A4	Monasach	19	37N	24E	6000	Monasach	21C17SP	6	12N	5424	Nisqually River	21A21a	16	40N	9E	Dungeness River	21A19a	7	40N	7E	
Puyossey Creek	20A28a	Monasach	32	40N	18E	4300	Monasach	20B13	4	20N	5424	PUGET SOUND DRAINAGE	21B20A	20	40N	8E	Deer Park	23B4	1	28N	5W	
Rusty Creek	19A3P	Numous Lake	18	35IN	24E	4000	Numous Lake	20B14	20	19N	5424	PUGET SOUND DRAINAGE	21B23	9-10	38N	7E	Morse Creek	23B14	31	29N	6W	
Salmon Meadows	19A2SP	Numous Lake	33	37N	24E	4500	Numous Lake	21B8P	13	21N	5424	Paradise Park (New)	21B26	17	39N	9E	Elwha River	23B14	31	29N	6W	
Silverton Mtn., Mt.	19A10a	Van Epps Pass	15	35N	23E	6750	Van Epps Pass	20B26a	16	23N	5425	White Pass (East Side)	21B27	20	40N	8E	Hurricane	23B3	36	29N	7W	
Touts Coulee	19A6	Wapius Lake	30	39N	25E	2845	Wapius Lake	21B49a	12	23N	5424	White Pass	21B10SP	25	21N	11E	Paradise Park (New)	21C35SP	13	15N	8E	
Billy Goat Pass	20A10a	White Pass (East Side)	10	38N	20E	6400	White Pass (West Side)	21C28SP	2	13N	5450	White River	21B13SP	30	18N	11E	Paradise Park (New)	21C35SP	13	15N	8E	
Dollar Woch	20A29P	7	39N	18E	7000	7000	Harts Pass	20A5SP	7	37N	6500	Harts Pass	20A5P	15	40N	11E	White River	21B13SP	30	18N	11E	
Horsehoe Basin	19A5a	7	37N	18E	6500	7000	Horsehoe Basin	19A7	15	40N	7000	Horsehoe Basin	20A30	18	34N	23E	Green River	21B24P	18	20N	11E	
Loup Loup	19A7	7	37N	18E	6500	7000	Loup Loup	20A30	17	30N	7000	Loup Loup	21B25	21	21N	9E	Green River	21B24P	18	20N	11E	
LOWER COLUMBIA DRAINAGE																						
Cloudy Pass	20A22a	12	3IN	15E	6500	Cloudy Pass	20A25a	3	3IN	3540	Charley Creek	21B25P	27	21N	8E	Airstrip	21B24P	18	20N	11E		
Greenwood Flat	20A23a	12	3IN	15E	5275	Greenwood Flat	20A25P	18	3IN	5275	Cougar Mountain	21B42SP	21	21N	9E	Charley Creek	21B25P	27	21N	8E		
Lytton Lake	20A24a	8	3IN	16E	5900	Lytton Lake	20A25P	18	3IN	5900	Grass Mountain No. 2	21B27	14	20N	8E	Grass Mountain No. 2	21B27	14	20N	8E		
Park Creek Flat	20A25P	18	3IN	16E	5900	Park Creek Flat	20A25P	19	34N	6220	Lester Creek	21B28	12	20N	8E	Grass Mountain No. 3	21B28	12	20N	8E		
Petersons Ridge	20A26a	18	3IN	16E	4690	Petersons Ridge	20A26a	18	34N	6220	Lynn Lake	21B29	36	20N	10E	Petersons Ridge	21B29	36	20N	10E		
Rainy Pass	20A29P	21	35N	17E	4780	Rainy Pass	20A29P	21	35N	4780	Sawmill Ridge	21B35	22	20N	8E	Rainy Pass	21B35	22	20N	8E		
Safety Harbor	20A30a	32	3IN	20E	6300	Safety Harbor	20A30a	20	3IN	6300	Snowshoe Butte	21B34SP	5	19N	11E	Safety Harbor	21B34SP	14	20N	11E		
Yar Creek Pass	20A31a	34	33N	18E	6500	Yar Creek Pass	20A31a	34	33N	6500	Stampede Pass	21B35P	25	21N	11E	Yar Creek Pass	21B35P	25	21N	11E		
Mirror Lake	20A39	30	31N	18E	5600	Mirror Lake	20B21a	10	28N	4900	Twin Comp	21B30	18	19N	11E	Stampede Pass	21B30	18	19N	11E		
Blue Creek G. S.	20B28a	19	28N	18E	5425	Blue Creek G. S.	20B28a	19	28N	5425	White River	21B33	10	21N	10E	White River	21B33	10	21N	10E		
Brief	20B19	1600	19E	5425	1600	Brief	20A33a	28	3IN	5425	White River	21B22P	30	22N	10E	White River	21B22P	31	22N	10E		
Entiat Meadows	20A34a	17E	4540	5425	4540	Entiat Meadows	20B27a	2	29N	5425	White River	21B16P	21	22N	9E	Entiat Meadows	20B27a	2	29N	5425		
Entiat River Trail	20A34c	2	30N	17E	3235	Entiat River Trail	20B27a	17E	4540	5425	White River	21B15P	8	22N	9E	Entiat River Trail	20B27a	2	29N	5425		
Four Mile Ridge	20B27a	15	28N	19E	6800	Four Mile Ridge	20B27a	15	28N	6800	White River	21B17P	11	21N	9E	Four Mile Ridge	20B27a	2	29N	5425		
Fox Camp	20A30a	17	30N	18E	6510	Fox Camp	20B27a	17	30N	6510	White River	21B18P	24	21N	10E	Fox Camp	20B27a	2	29N	5425		
Pope Ridge	20B28a	22	29N	18E	5350	Pope Ridge	20B28a	22	29N	5350	White River	21B18P	26	26N	9E	Pope Ridge	20B28a	2	29N	5425		
Scope Ridge	20B28SP	35	22N	17E	5340	Scope Ridge	20A32c	34	30N	18E	White River	21B18P	26	26N	9E	Scope Ridge	20B28SP	2	29N	5425		
Pugh Ridge	20A32c	34	30N	18E	6725	Pugh Ridge	20A32c	21	35N	18E	White River	21B18P	26	26N	9E	Pugh Ridge	20B28SP	2	29N	5425		
Shady Pass	20A37	20	29N	19E	6200	Shady Pass	20A37	20	29N	6200	White River	21B17P	11	21N	9E	Shady Pass	20B28SP	2	29N	5425		
Snow Brushy	20A37a	21	30N	17E	3910	Snow Brushy	20A37a	21	30N	3910	White River	21B18P	24	21N	10E	Snow Brushy	20B28SP	2	29N	5425		
Tommy Creek	20B21a	10	28N	18E	4900	Tommy Creek	20B21a	10	28N	4900	White River	21B19P	1	21N	10E	Tommy Creek	20B21a	10	28N	5425		
Bennie-Mill Creek (New)	21B14SP	7	26N	15E	3170	Bennie-Mill Creek (New)	21B14SP	13	26N	14E	White River	21B48	31	27N	9E	Bennie-Mill Creek (New)	21B14SP	7	26N	5425		
Bennie-Mill Creek No. 2	20B22SP	35	22N	17E	4270	Bennie-Mill Creek No. 2	20B22SP	35	22N	17E	White River	21B2P	19	22N	9E	Bennie-Mill Creek No. 2	21B2P	35	22N	5425		
Chiwaukum G. S.	21B16P	4	25N	17E	1810	Chiwaukum G. S.	20B16P	4	25N	17E	White River	21B18P	26	26N	9E	Chiwaukum G. S.	21B16P	4	25N	5425		
Lake entatche	20B16	33	27N	17E	1970	Lake entatche	20B16	33	27N	17E	White River	21B18P	26	26N	9E	Lake entatche	21B16P	33	27N	5425		
Leavenworth R. S.	20B18	4	24N	17E	1127	Leavenworth R. S.	20B18	4	24N	17E	White River	21B18P	26	26N	9E	Leavenworth R. S.	21B18P	4	24N	5425		
Merritt	20B18	14	26N	13E	4070	Merritt	20B18	14	26N	13E	White River	21B18P	26	26N	9E	Merritt	21B18P	14	26N	5425		
Stevens Pass	21B18SP	12	26N	13E	4070	Stevens Pass	21B18SP	12	26N	13E	White River	21B18P	26	26N	9E	Stevens Pass	21B18SP	12	26N	5425		
Trough	20B25SP	10	26N	13E	5310	Trough	20B25SP	10	26N	13E	White River	21B18P	26	26N	9E	Trough	21B25SP	10	26N	5425		



INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

NAME	NUMBER	S.F.C.	TWP.	RANGE	FLY.	NAME	NUMBER	S.F.C.	TWP.	RANGE	FLY.	NAME	NUMBER	S.F.C.	TWP.	RANGE	FLY.												
UPPER COLUMBIA DRAINAGE																													
Pend Oreille River						Clockum Creek						Lewis River																	
Boyer Mountain	1PA2	7	3IN	43E	5250	Clockum Creek Upper	20B23	11	20N	20E	5300	Lone Pine Shelter	21C26SP	8	9N	7E	3800												
Bunchgrass Meadow	1, A1SP	24	37N	44E	5000	Clockum Creek Lower	20B23	1	20N	20E	4300	Marble Mountain	22C09SP	26	8N	5E	3200												
Winchester Creek	17A3	30	33N	43E	2970	Squatchuck Creek	20B3	12	21N	19E	4400	Plains of Abraham	22C15SP	35	8N	5E	4400												
Kettle River						Beehive Springs	20B4	18	21N	20E	3400	Spencer Meadow	21C20SP	16	8N	7E	3400												
Boulder Road	18A2	36	39N	36E	1450	Scout-A-Vista	20B4	18	21N	20E	3400	Surprise Lakes	21C13SP	14	7N	8E	4250												
Butte Creek	18A3	28	39N	35E	4070	Stem Creek						Cowlitz River																	
Cabin Creek	18A8	5	38N	36E	3170	Jump-Off	20B6	34	21N	20E	4450	Cayuse Pass	21C16	15	16N	10E	5300												
Goat Creek	18A4	26	39N	35E	3595	Stemilt Slide	20B7SP	30	21N	20E	4400	Digital Peak	21C33SP	11	13N	11E	5900												
Snow Caps Creek	18A5	3	38N	36E	2150	Upper Wheeler						Fatato Hill	21C14SP	36	10N	10E	4500												
Snow Caps Trail	18A6	5	38N	36E	366						Ryan Lake	22C08SP	9	10N	6E	3280													
Summit G. S.	18A7	20	39N	35E	4600	Ahanum R., S.,	21C11	24	12N	14E	3100	Dock Butte	21A11A	8	36N	8E	4920												
Colville River						Big Boulder Creek	21B9SP	35	23N	14E	3200	Easy Pass	21A7A	19	39N	11E	3800												
Lord	17A6	19	36N	42E	3215	Bumping Lake	21C36	12	16N	12E	3450	Jasper Pass	21A6A	17	38N	11E	5400												
Carlson	18A9	34	32N	41E	38E	New Lake	21C38SP	13	16N	12E	3400	Marten Lake	21A9A	23	38N	8E	3600												
Chewelah	17A4	11	32N	41E	4925	Bumping Ridge	20B9	9	15N	12E	4600	Mount Blum	21A18a	27	38N	10E	5800												
Stranger Mountain	17A5	26	31N	38E	4990	Colockum Pass	20B10	17	19N	20E	5370	Rocky Creek	21A12AP	20	37N	8E	2100												
Togo	18A10	6	29N	38E	3370	Cooke Creek	21B4SP	28	14N	20E	4123	Schreibers Meadow	21A10Af	18	37N	8E	3400												
Sanpoil River						Fish Lake	21C10SP	28	12N	14E	6000	S. F. Thunder Creek	21A14A	20	36N	9E	2200												
Colville River	18A1	19	36N	35E	5350	Grouse Camp	20B11SP	29	21N	19E	5385	Sulphur Creek	21A13	22	37N	8E	1600												
Okanogan River						High Creek	20B12	34	20N	19E	2930	Three Mile Creek	21A15	18	36N	9E	4500												
Sieman Creek Pass	19A8a	2	36N	23E	7000	Joe Lake	21B14M	15	20N	14E	2200	Watson Lakes	21A8P	25	37N	9E	3227												
Clark	19A9a	20	36N	24E	6750	Lake Cle Elum	21B47a	7	23N	14E	3935	Nooksack River	21A19a	7	40N	7E	4400												
Muckamuck	19A1	30	37N	24E	5700	Manastash	20C1	24	17N	16E	5400	Bald Mountain	21A20a	20	40N	8E	5100												
Motion Creek No. 1	19A2	19	36N	24E	6700	Monastash	20C1	24	17N	16E	3935	Canyon Glacier Creek	21A23	9-10	38N	7E	3700												
Motion Creek No. 2	19A2B	32	40N	18E	4300	Morse Lake	21C17SP	6	16N	11E	3875	Panorama New	21A26	17	39N	9E	4300												
Pasoyen Creek	19A3P	18	35N	24E	4000	Numus	20B13	4	20N	19E	3360	Twin Lakes	21A2la	16	40N	9E	5200												
Rusty Creek	19A2SP	33	37N	24E	4500	Trail Creek	20B14	20	19N	20E	3200	OLYMPIC PENINSULA																	
Salmon Jackcows	19A10a	15	35N	23E	6750	Tunnel Avenue	21B8P	13	21N	11E	2450	Dungeness River																	
Starvation Mtn.	19A6	30	39N	25E	2845	Van Eps Pass	20B2a	16	23N	15E	5925	Morse Creek																	
Tants Coulee						Wathers Flat	20B15	22	20N	19E	3360	Cox Valley																	
Billy Goat Pass	20A10a	10	38N	20E	6400	Wapiti Lake	21B49a	12	23N	13E	3024	Elwha River																	
Dollar Watch	20A29a	8	39N	20E	7000	White Pass (East Side)	21C28SP	2	13N	11E	4500	Hurricane																	
Harts Pass	20A51SP	7	37N	18E	6500							Paradise Park (New)																	
Horseshoe Basin	19A5a	15	40N	18E	7000							White River																	
Loup Loup	19A7	36	34N	23E	4650							Cedar River																	
Cloudy Pass	20A22a	12	31N	15E	6500							Green River																	
Greenwood Flat	20A25a	3	31N	16E	3540							Airstrip																	
Little Meadows	20A24a	8	31N	16E	5275							Charley Creek																	
Lyman Lake	20A23SP	18	31N	16E	5900							Deer Park																	
Park Creek Flat	20A13a	19	34N	16E	2200							Grass Mountain No. 2																	
Park Creek Ridge	20A12SP	18	34N	16E	4600							Grass Mountain No. 3																	
Petersons	20A16a	2	34N	17E	3720							Lester Creek																	
Rainy Pass	20A9SP	21	35N	17E	4780							Lynn Lake																	
Safety Harbor	20A30a	32	31N	20E	6300							Sawmill Ridge																	
War Creek Pass	20A31a	34	33N	18E	5500							Snowshoe Butte																	
Mirror Lake	20A39	30	31N	18E	5600							Stampede Pass																	
Entiat River	20B28a	19	28N	18E	5425							Twin Camp																	
Blue Creek G. S.	20B19	34	28N	19E	1600							Lower COLUMBIA DRAINAGE																	
Brief	20A33a	28	31N	17E	4540							Green River																	
Entiat River Trail	20A34a	2	29N	17E	3325							Alpine Meadow																	
Four Mile Ridge	20B27a	15	28N	19E	6800							Ollie Meadow																	
Fox Camp	20A35a	17	30N	18E	6510							South Fork Tolt																	

WATER SUPPLY OUTLOOK

State of Washington

May 1, 1981

The snowstorms which occurred after snow surveys in April did nothing to improve the water supply situation. The normal maximum snow accumulation occurs about April 1. March 1 turned out to be the maximum snowpack for 1981, and is another indicator of the lack of snow. Forecasts throughout the state are below those issued on April 1, but only minimally. Rainfall this past month was about normal with stations fluctuating from slightly below normal to above normal. Reservoir storage is the bright spot, with most being well above average.

SNOW COVER

Snow course measurements taken near the first of May show the snowpack declining at above normal rates due mainly to the lack of snow as insulation. Layers within the pack break down more quickly during low snowpack years which contributes to streamflow at higher rates early in the year. The normal storage characteristic of snow is lost. Snowpacks in some parts of the state are less than they were in 1977 and range from a low of 15 percent on the Dungeness to a high of 63 percent of normal on the Chelan Basin. Areas with snowpacks below 1977 include the Lewis River at 19 percent as compared to 32 percent in 1977. Others with below 1977 percents are the Skykomish, the Nooksack, and the Dungeness. All of these basins contribute streamflow to the western slope of the Cascades or the Olympic Peninsula. Snowpack conditions over the rest of the state have remained about the same as last month. Most of these snowpacks are above that in 1977.

RESERVOIRS

The bright spot in the water supply picture remains the reservoir storage. All reservoirs are above normal with the exception of Gorge Reservoir which is only slightly below normal. Care will still need to be used so that if adequate snowpack and precipitation do not occur next year, sufficient water will still remain in storage to satisfy needs at that time. What this means is that conservation of water is necessary to reduce water use this year and improve carryover to 1982. The main use of stored water will be to satisfy late summer and fall water needs when streamflows will be well below normal. Most of this water was stored in December when rains washed out much of the snowpack that existed at that time.

PRECIPITATION

The National Weather Service reports precipitation that is above average over most of the state. Most areas in Washington have reported above average precipitation with the northwest slope of the Cascades well above average at 164 percent of normal. Washington, excluding the northwest portion, was 130 percent of normal. Two areas in the state had well below normal precipitation. Central Washington was only 31 percent of normal and northcentral Washington was only 53 percent of normal, worsening an already bleak water supply picture. In Canada, the stations reported indicated a good month for precipitation at 163 percent of normal; only a few stations reported at or slightly below normal precipitation.

STREAMFLOW

April has been a month of little contribution to improve the water supply situation. The snow storms which occurred just after the first of April were not followed by any storms that would improve the snowpack. The soil moisture that built up during the fall will go quite a ways in supporting flows this spring, but flows will be poor in mid to late summer and fall. Forecasts have decreased slightly from last month. The mainstem of the Columbia is in the best shape with flows about 80 percent of normal, due mostly to adequate snowpacks in Canada. Forecasts in Washington range from a low of approximately 50 percent on several rivers to a high of 80 percent on the Kettle River. Streamflows during the month had a wide range. The low was 72 percent of normal on the Palouse with a high of 121 percent of normal on the Skagit. The greatest number of gaging stations indicate flows over most of the state are normal. This would mean that due to low snowpacks, melt is progressing at a faster rate - contributing to flows earlier in the year. Numerical forecasts can be found on the following pages.

STREAMFLOW FORECASTS - MAY, 1981

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. These forecasts are made as a product of the cooperative efforts of the Soil Conservation Service and the National Weather Service. Streamflow figures for 1980 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr. Avg.	Fore- cast period	1980	1979	1978	15-yr. Average 63-77
		<u>COLUMBIA BASIN</u>					
<u>COLUMBIA RIVER SYSTEM</u>							
Columbia River at Birchbank 1/	38800 30595 21350	91 91 91	May-Sept May-July May-June	35923 29192 22730	32506 25203 17683	40601 30622 20674	42769 33621 23461
Columbia River at Grand Coulee 1/	46900 38400 28700	76 76 76	May-Sept May-July May-June	52308 43612 35163	47880 39207 30248	58882 46573 33599	61503 50526 37764
Columbia River bl. Rock Island Dam 1/	51700 42795 32035	77 79 77	May-Sept May-July May-June	56911 48166 39066	50210 41612 32364	64144 51416 37495	67050 55578 41605
Columbia River at The Dalles, OR 1/	61600 51685 39935	68 68 68	May-Sept May-July May-June	78563 65325 53710	66834 55749 45007	85792 69552 52090	90981 76007 58725
<u>PEND OREILLE RIVER SYSTEM</u>							
Pend Oreille River bl. Box Canyon	5420 4915 4090	40 40 40	May-Sept May-July May-June	11197 10042 8702	10206 9662 8783	13067 11566 9235	13595 12286 10230
<u>KETTLE RIVER SYSTEM</u>							
Kettle River nr. Laurier	1300 1225 1100	81 80 81	May-Sept May-July May-June	1422 1334 1190	1133 1090 1007	1682 1504 1313	1616 1524 1358
Colville River at Kettle Falls	60 55 50	71 75 77	May-Sept May-July May-June	76 66 57	43 38 35	84 71 63	84 73 65

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet						15-yr. Average 63-77
		% 15-yr. Avg.	Fore- cast period	1980	1979	1978		
SPOKANE RIVER SYSTEM								
Spokane River ** at Post Falls, ID 2/	975 905 845	46 46 46	May-Sept May-July May-June	1675 1507 1365	1924 1872 1793	1571 1474 1343	2102 1966 1833	
OKANOGAN RIVER SYSTEM								
Similkameen River nr. Nighthawk	695 660 545	48 49 49	May-Sept May-July May-June	1340 1251 1108	811 751 667	1377 1236 1041	1440 1339 1114	
Okanogan River nr. Tonasket	800 720 585	50 50 50	May-Sept May-July May-June	1418 1290 1107	840 756 662	1513 1323 1109	1595 1441 1180	
METHOW RIVER SYSTEM								
Methow River nr. Pateros	645 595 485	69 69 68	May-Sept May-July May-June	915 854 750	441 395 345	1045 930 748	938 864 718	
CHELAN RIVER SYSTEM								
Chelan River at Chelan 3/	890 765 575	78 78 78	May-Sept May-July May-June	933 833 672	675 584 475	1179 1008 750	1139 982 736	
Stehokin River at Stehokin	615 520 385	75 76 77	May-Sept May-July May-June	643 547 425	511 422 332	795 656 469	823 683 497	
Entiat nr. Ardenvoir	175 165 125	77 81 79	May-Sept May-July May-June	187 171 143	124 110 94	264 237 185	227 204 159	
WENATCHEE RIVER SYSTEM								
Wenatchee River at Plain	785 695 525	67 67 67	May-Sept May-July May-June		785 704 596	1115 975 749	1172 1032 778	
Wenatchee River at Peshastin	1110 965 735	70 68 68	May-Sept May-July May-June	1201 1087 893	1024 932 796	1490 1311 1010	1595 1414 1077	
Stemilt Basin nr. Wenatchee	95*	69	May-Sept				138*	
Icicle Creek nr. Leavenworth	220 210 175	60 62 63	Apr-Sept Apr-July Apr-June				371 342 279	

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

* Thousands of Miners' Inches

** Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho.

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet						15-yr. Average 63-77
		% 15-yr.	Fore- cast Avg.	1980	1979	1978		
		period						
YAKIMA RIVER SYSTEM								
Yakima River nr. Martin <u>4/</u>	75 65 55	61 59 60	May-Sept May-July May-June	78 66 58	99 89 77	88 75 67	122 110 91	
Yakima River at Cle Elum <u>5/</u>	495 440 360	60 60 60	May-Sept May-July May-June	552 476 406	574 543 459	644 532 451	827 735 603	
Yakima River nr. Parker <u>6/</u>	1000 880 735	55 55 55	May-Sept May-July May-June	1235 1134 1011	1115 1014 906	1504 1218 1014	1815 1601 1340	
Kachess River nr. Easton <u>7/</u>	55 50 45	52 51 55	May-Sept May-July May-June	77 70 57	76 70 63	73 67 60	105 98 82	
Cle Elum River nr. Roslyn <u>8/</u>	275 245 195	65 65 65	May-Sept May-July May-June		295 273 239	346 301 247	423 379 302	
Bumping River nr. Nile <u>9/</u>	80 70 55	61 59 59	May-Sept May-July May-June	101 92 83	90 83 73	100 89 74	132 119 93	
American River nr. Nile	70 60 50	61 58 61	May-Sept May-July May-June	95 88 79	71 64 56	93 81 65	114 103 82	
Tieton River at Tieton Dam <u>10/</u>	145 120 90	65 66 65	May-Sept May-July May-June	176 144 118	159 128 100	191 152 112	223 183 139	
Naches River nr. Naches <u>11/</u>	430 380 290	56 56 52	May-Sept May-July May-June	514 479 422	492 446 395	560 495 403	772 684 558	
Ahtanum Creek nr. Tampico <u>12/</u>	24 21 16	62 60 55	May-Sept May-July May-June				37 32 26	39 35 29

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess, and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation, and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals, and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1981	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-yr. Avg.	Fore- cast period	1980	1979	1978	15-yr. Average 63-77
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek at Walla Walla	3.80 3.65 3.55	49 49 49	May-Sept May-July May-June	9.08 8.96 8.85	4.56 4.44 4.36	7.70 7.50 7.30	
Lewis River at Ariel <u>13/</u>	530 435 360	55 55 55	May-Sept May-July May-June	671 539 459	798 504 408	960 790 654	
Cowlitz River Bl. Mayfield Dam	1010 855 675	59 59 59	May-Sept May-July May-June	1205 1010 846	1292 1005 808	1717 1445 1144	
Cowlitz River at Castle Rock <u>14/</u>	1140 955 760	53 53 53	May-Sept May-July May-June	1522 1268 1051	1705 1308 1054	2170 1804 1432	
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River nr. Sequim	85 70 50	60 62 63	May-Sept May-July May-June	96 77 58	136 99 67	143 113 79	
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River at Newhalem <u>15/</u>	1330 1425 1170 850	66 66 66 66	May-Aug May-Sept May-July May-June	1352 1477 1188 932	1673 1885 1460 1055	2017 2161 1776 1290	
<u>ELWHA RIVER SYSTEM</u>							
Elwha River nr. Port Angeles	265 210	55 55	May-Sept May-July	349 276	395 288	480 381	
<u>GREEN RIVER SYSTEM</u>							
Green River bl. Howard Hanson Dam <u>16/</u>	90	39	May-Sept	141	145	144	233
<u>CEDAR RIVER SYSTEM</u>							
Cedar River nr. Cedar Falls	40	54	Apr-Sept		70	59	93

13/ Observed flow corrected for storage in Lake Merwin, Yale, and Swift Reservoirs.
14/ Observed flow corrected for storage in Mayfield Reservoir.
15/ Observed flow corrected for storage in Diablo, Ross, and Gorge Reservoirs.
16/ Observed flow corrected for storage in Howard Hanson Dam.

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE CAPACITY ^{1/}	1981	1980	Measured May 1 1979	Normal*
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	248.0	264.5	260.5	238.4
Columbia	Franklin D. Roosevelt Lake	5232.0	3198.4	2460.0	909.9	867.8
Columbia	Banks Lake	714.9	642.7	527.9	393.4	442.8
Oaknogan	Conconully Reservoir	13.0	9.1	6.5	10.3	7.7
Okanogan	Conconully Lake	10.5	10.0	9.0	10.5	8.0
Chelan	Lake Chelan	676.1	224.9	214.4	163.4	219.0
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	159.6	131.5	117.0	113.8
Kachess	Kachess Lake	239.0	240.3	126.7	228.0	194.2
Cle Elum	Lake Cle Elum	436.9	365.1	378.0	180.9	295.9
Bumping	Bumping Lake	33.7	34.3	34.4	13.3	11.6
Tieton	Rimrock Lake	198.0	198.3	144.0	146.4	136.6
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	1086.3	644.0	731.6	711.5
Skagit	Diablo Reservoir	90.6	87.9	84.1	86.8	86.4
Skagit	Gorge Reservoir	9.8	7.9	7.5	8.0	8.1

^{1/} Based on Active Storage

* 15-yr. Average 1963-1977

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The Following tabulation of Washington stream basins presents the water content of the snow about May 1, 1981, as percent of the same date in 1980 and 1979 and average of record. We have also added a comparison of 1977 data with average for your information, since 1977 was considered a low water year.

Tributary Basin	No. of Courses	1981 Snow Water Expressed as percent of			1977 as percent of
		1980	1979	1963-77 Avg.	

UPPER COLUMBIA BASIN

Pend Oreille	9	76	62	51	26
Kettle	7	135	79	54	30
Spokane	4	81	42	34	26
Okanogan	30	157	157	60	32
Methow	4	78	475	46	26
Chelan	1	109	102	63	49
Entiat	8	103	96	57	22
Wenatchee	3	41	30	26	22
Yakima	6	63	53	46	12

LOWER COLUMBIA BASIN

Asotin	1	56	31	33	7
Mill Creek	1	100	-	44	-
Lewis	4	-	-	19	32

PUGET SOUND

White	2	73	63	52	28
Green	2	60	42	38	16
Snoqualmie	1	46	28	23	33
Skykomish	2	34	29	22	41
Skagit	9	78	65	44	36
Nooksack	1	49	43	28	-

OLYMPIC PENINSULA

Morse	1	54	43	33	-
Elwha	1	64	40	23	32
Dungeness	1	26	17	15	32

PRECIPITATION 1/

Division Average Observations and Departures

Drainage Divisions	FALL		WINTER		SPRING	
	Sept-Oct Observed	1980 Departure	Nov 1980 - Mar 1981 Observed	1980 Departure	April 1981 Observed	1981 Departure
Columbia in Canada	3.76	-1.26	14.49	-1.02	2.79	+1.08
Pend Oreille - Spokane	2.75	-1.29	15.12	-2.43	3.10	+1.28
Northeastern Washington	2.37	-0.11	8.49	-0.91	1.54	+0.28
Southeastern Washington	2.33	-0.18	11.21	+0.78	1.67	+0.14
Central Washington	1.60	+0.63	5.50	+0.22	0.20	-0.45
North Central Washington	1.45	-0.14	7.16	+0.62	0.45	-0.40
Northwest Slope Cascades	7.35	-5.86	52.10	-3.29	10.90	+4.26
Southwest Slope Cascades	3.89	-4.79	38.40	-3.24	5.57	+0.95

Northeastern Washington	- Lower Spokane, Colville, Sanpoil, and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon, and Palouse Drainages.
Central Washington	- Yakima, Wenatchee, and Chelan Drainages.
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

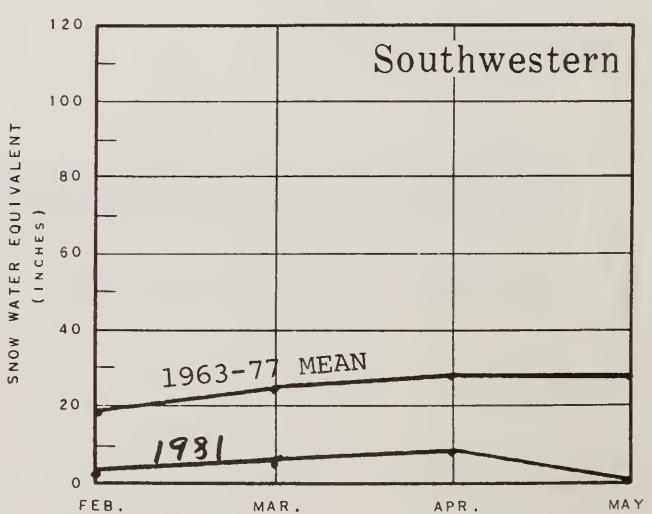
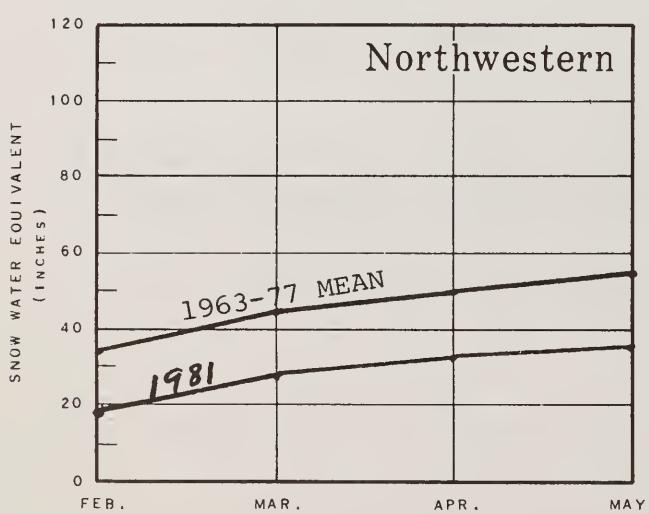
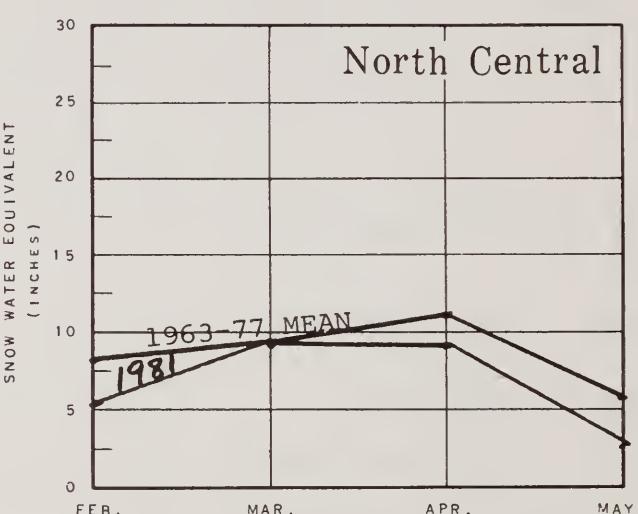
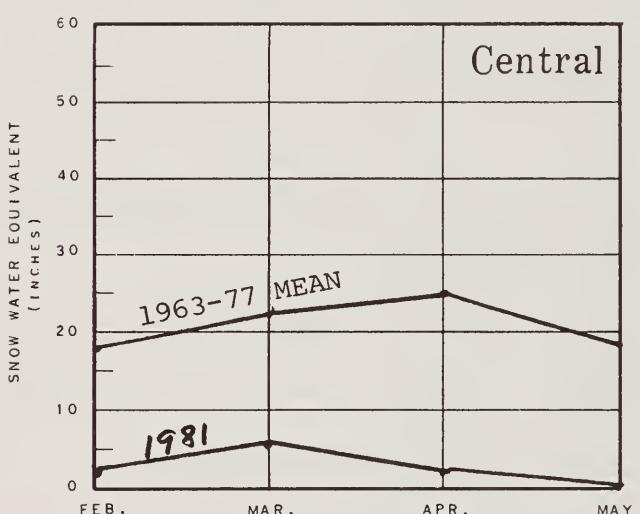
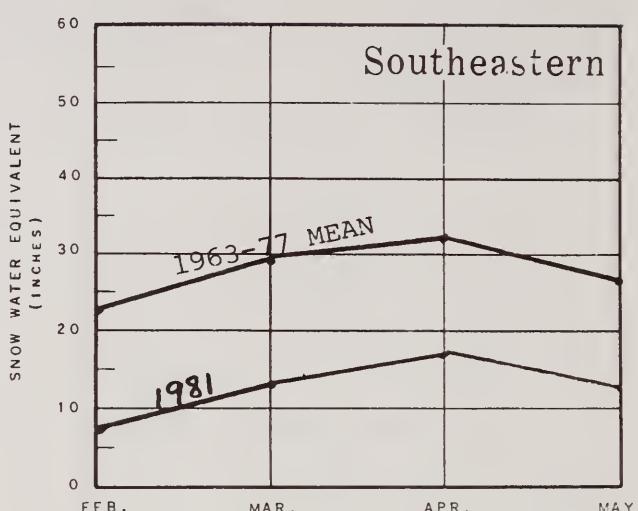
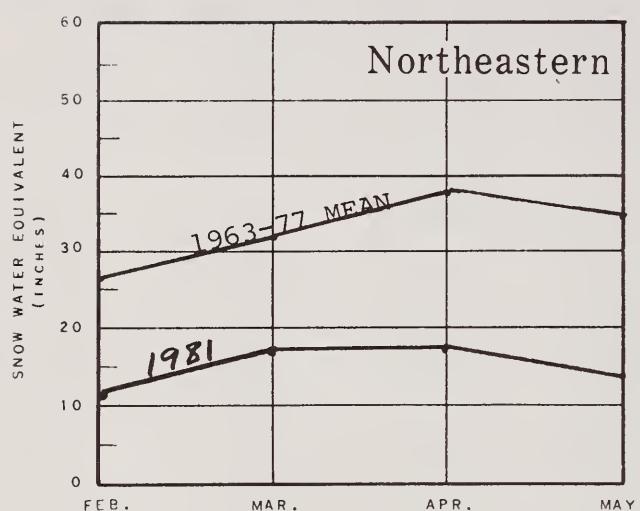
1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

2/ Departure from 15-year (1958-72) drainage division average.

WASHINGTON SNOW COVER

1981

DRAINAGE AREAS

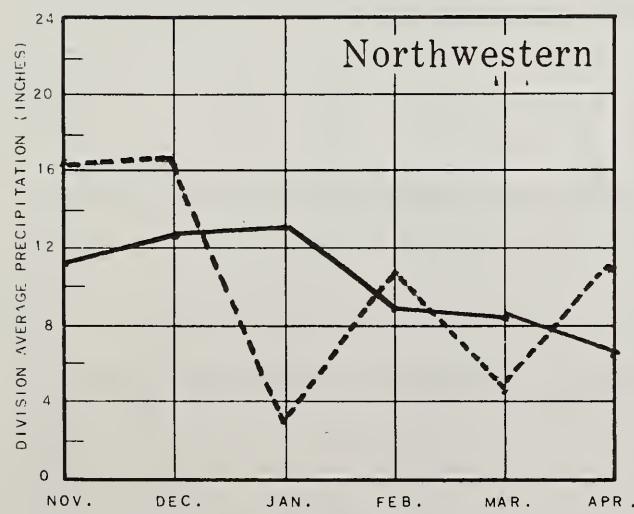
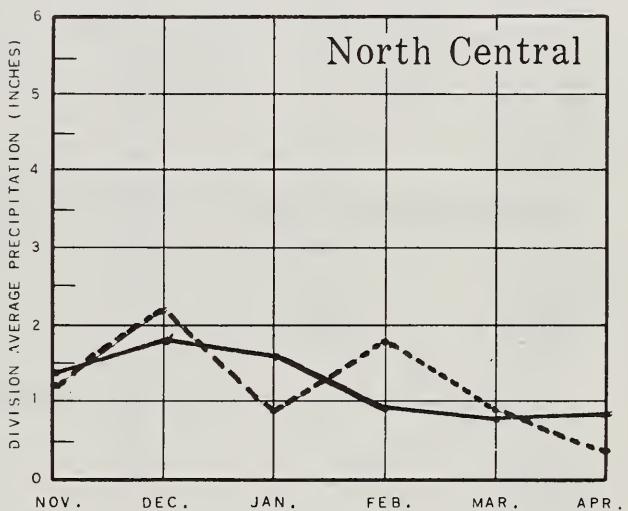
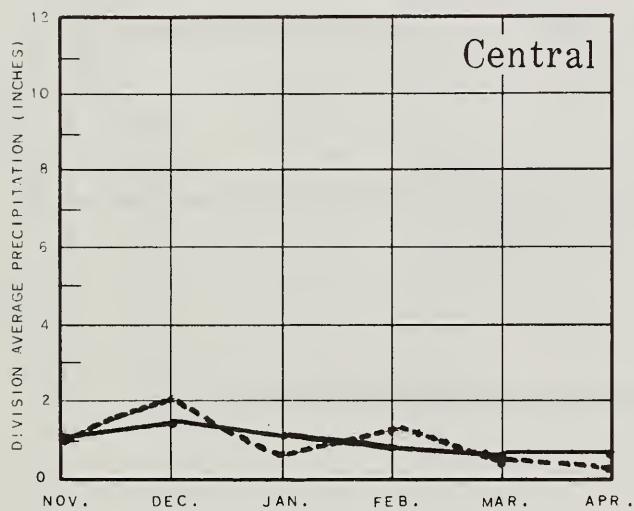
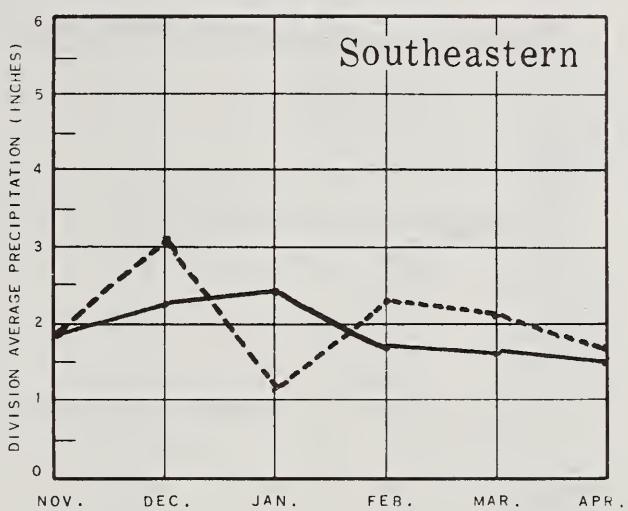
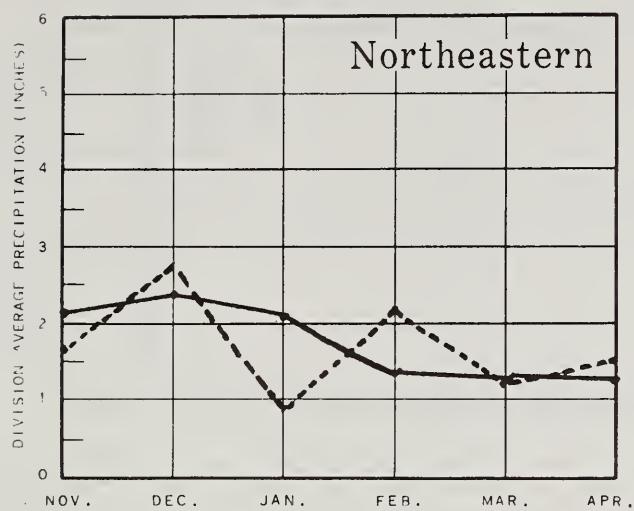


Selected Snow Survey Courses by Soil Conservation Service

WASHINGTON VALLEY PRECIPITATION

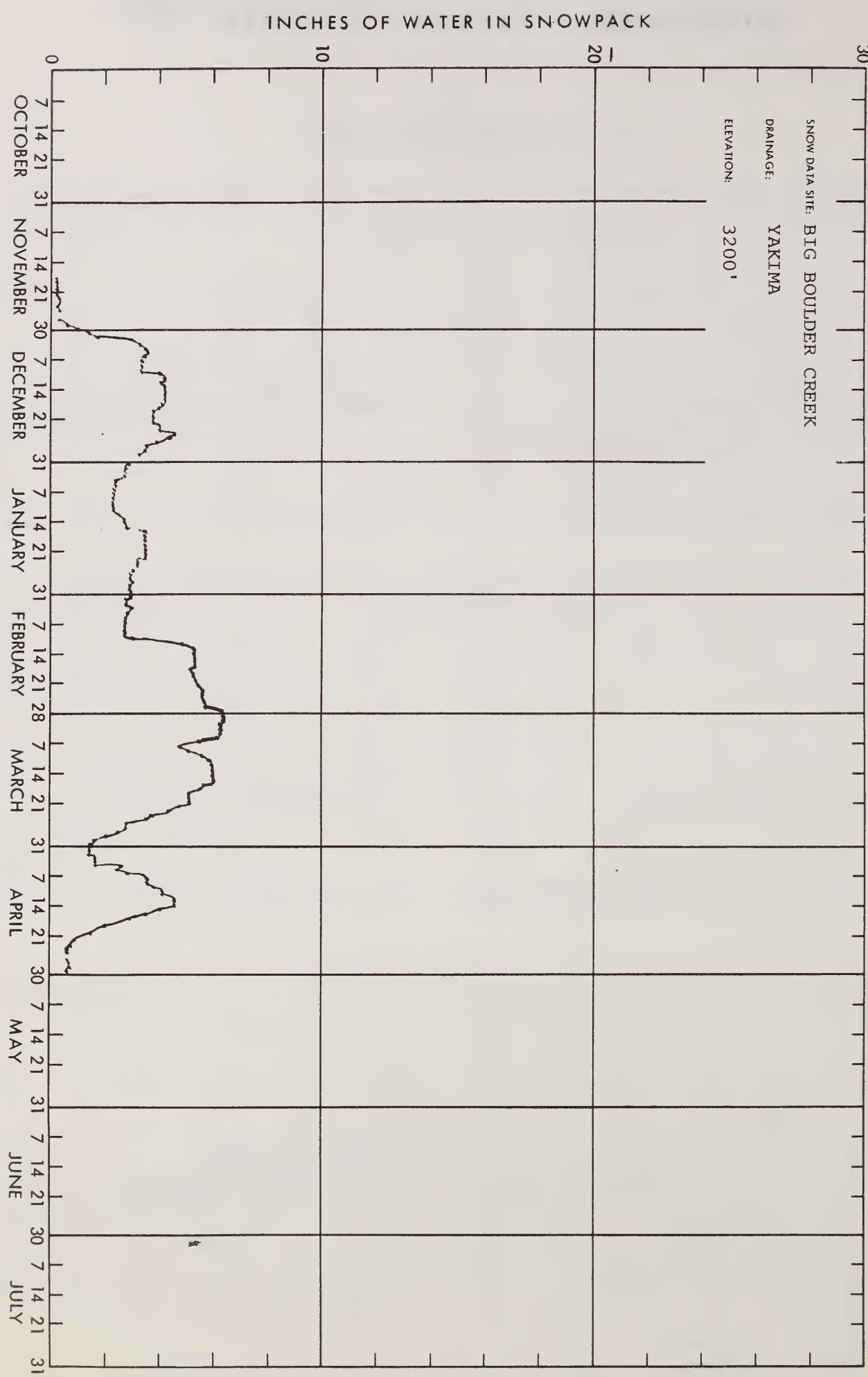
1981

DRAINAGE AREAS

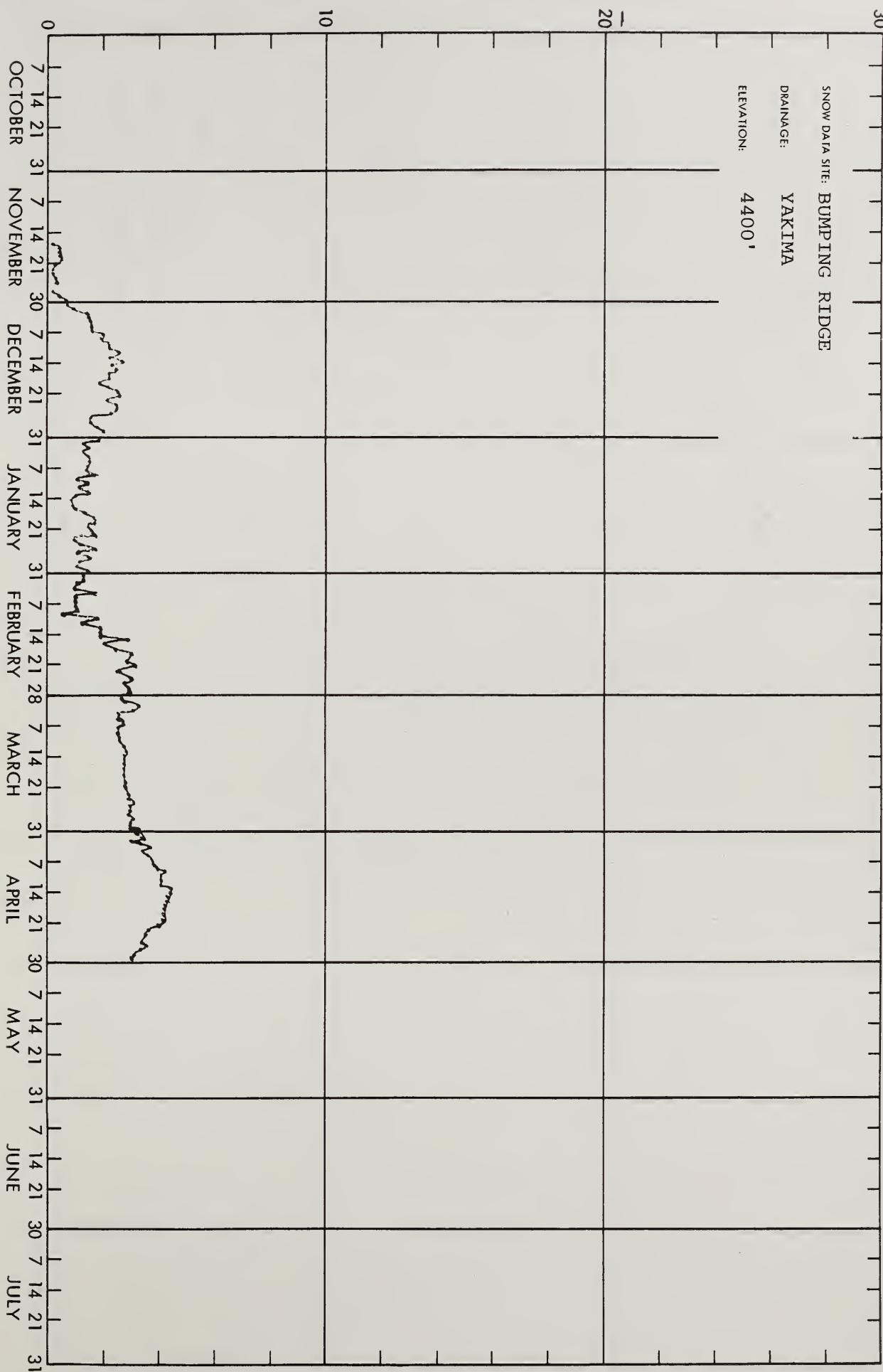


Average:
1981 :

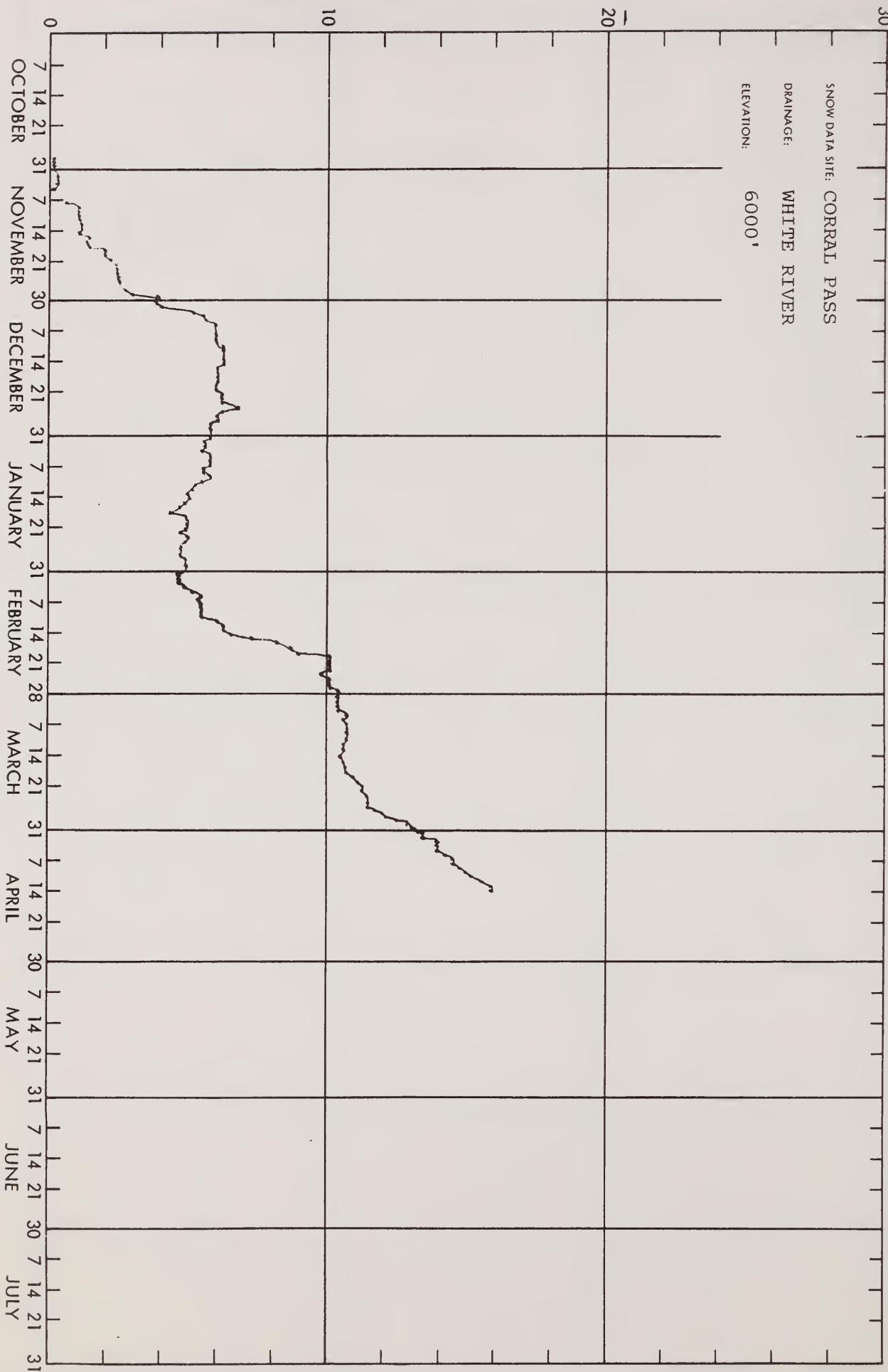
Preliminary Analysis by National Weather Service



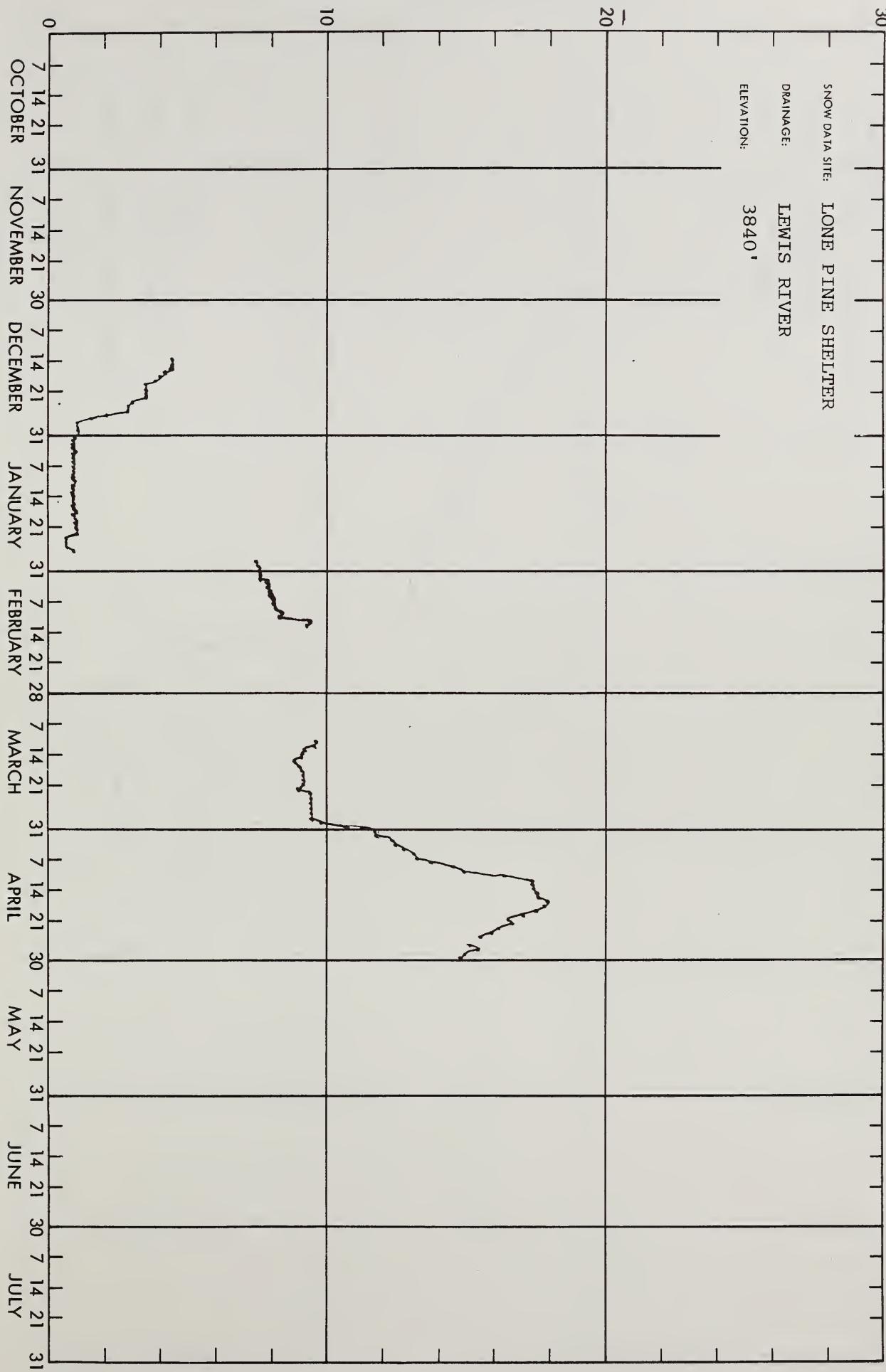
INCHES OF WATER IN SNOWPACK



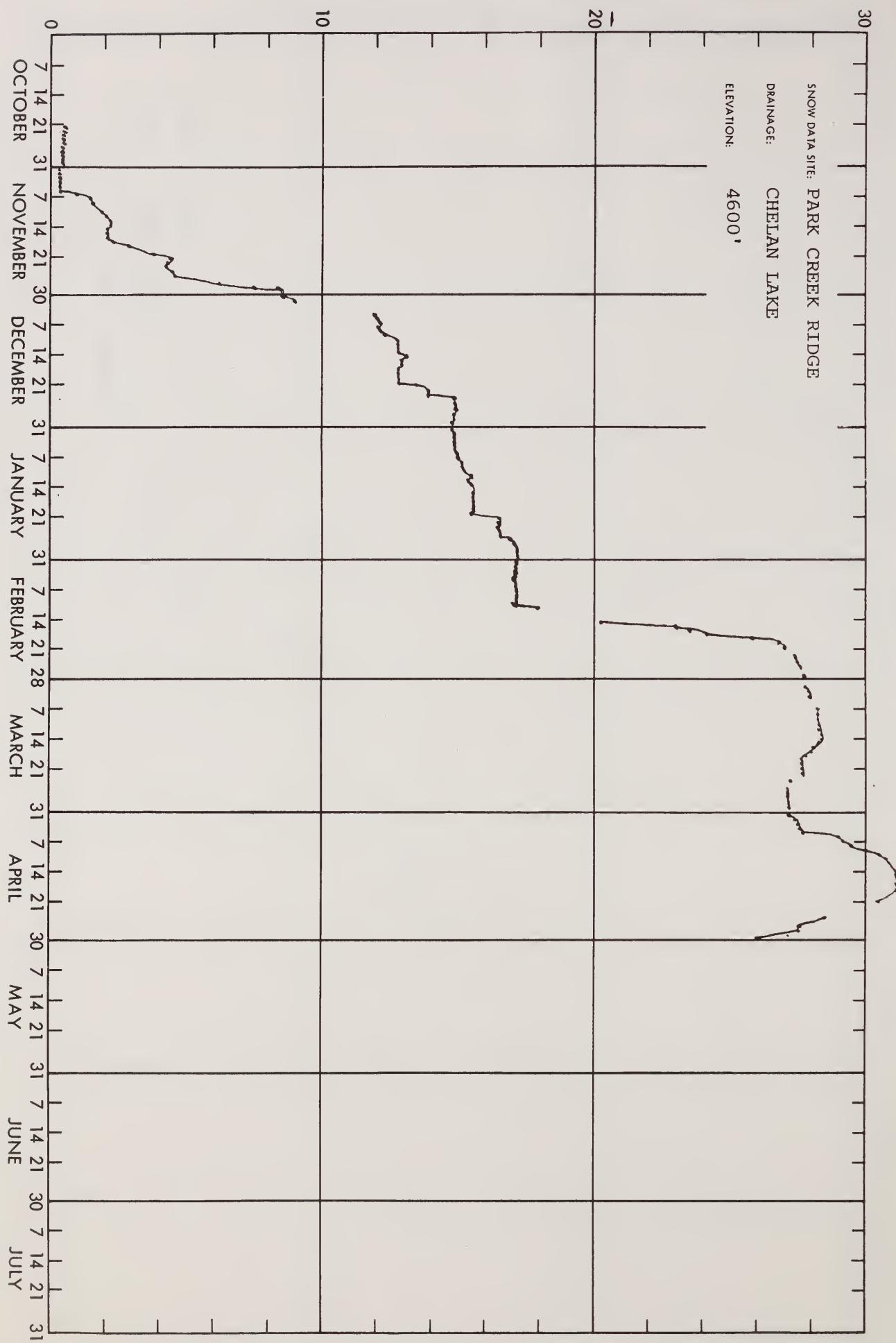
INCHES OF WATER IN SNOWPACK

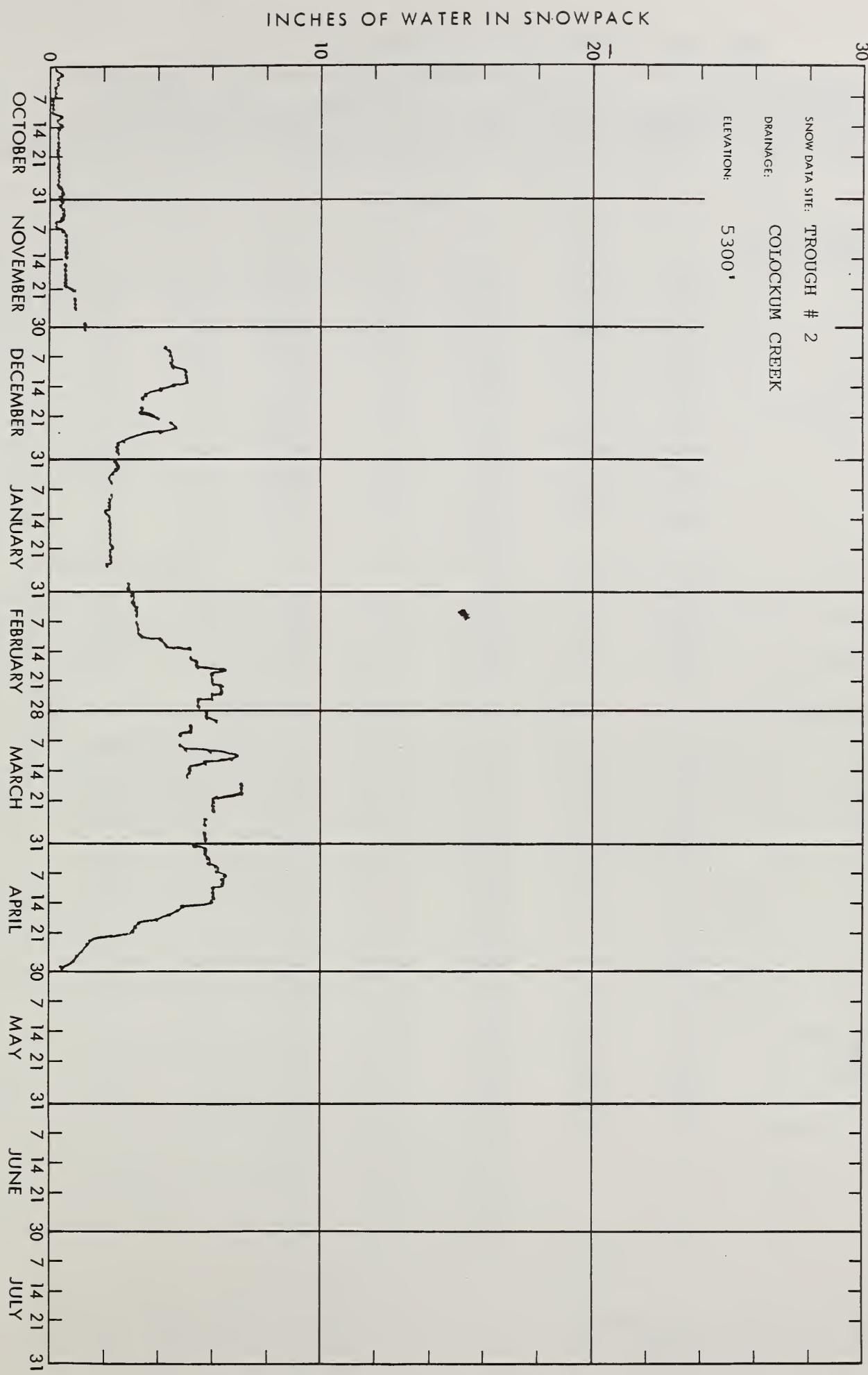


INCHES OF WATER IN SNOWPACK



INCHES OF WATER IN SNOWPACK





SNOW DATA TO MAY 1, 1981 - APPENDIX 1

SNOW				THIS YEAR		PAST RECORD		
	DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
	NAME	Number	Elevation				Last Year	1977

U P P E R C O L U M B I A D R A I N A G E

PEND OREILLE RIVER

Baree Creek	15B11	5500	4/30	60	26.6	27.3	18.6	49.5
Baree Midway	15B16	4600	4/30	29	12.2	18.7	11.7	35.1
Baree Trail	15B15	3800	4/30	0	0.0	0.0	0.0	1.8
Benton Spring	16A03	4900	4/29	16	6.5	4.0	0.0	16.7
Boyer Mountain	17A02	5250	4/27	39	14.4	17.2	2.1	25.2
Brush Creek Timber	14A13	5000	4/30	0	0.0	0.0	0.0	8.1
Bunchgrass Meadow	17A01	5000	4/28	59	18.8	18.5	6.5	30.0
Heart Lake Trail	14C10	4800	5/4	0	0.0	11.4	3.3	19.1
Hoodco Basin	15C10	6000	5/4	77	33.4	44.0	20.6	55.6
Hoodoo Creek	15C01	5900	5/4	68	30.1	39.8	18.4	52.0
Lookout	15B02	5250	4/15	65	21.2	29.2	15.3	38.6
			4/29	37	14.2	17.4	8.3	35.4
Mosquito Ridge	16A04A	5100	4/30	50	18.6	-	4.3	-
Nelson	2D04-Can	3050	5/1	1.6	0.7	2.0	1.5	7.0*
Schweitzer Ridge	16A05	6100	5/1	66	30.4	42.8	14.5	47.5
Smith Creek	16A01	4800	4/29	79	36.8	32.5	15.2	47.4
Winchester Creek	17A03	2970	4/27	0	0.0	0.0	0.0	1.9

KETTLE RIVER

Barnes Creek	2B06-Can	5300	5/1	43	16.5	8.3	14.0	20.7*
Big White Mtn.	2E03-Can	5500	5/2	46	18.1	12.4	10.3	21.1*
Bluejoint Mtn.	2E06-Can	7500	5/1	62	26.0	20.7	11.3	28.7*
Boulder Road	18A02	1450	4/28	0	0.0	0.0	0.0	0.0
Butte Creek	18A03	4070	4/28	5.8	1.7	3.0	0.0	6.0
Cabin Creek	18A08	3170	4/28	0	0.0	0.0	0.0	1.8
Carmi	2E02-Can	4100	5/2	0	0.0	0.0	0.0	2.0*
Farron # 1	2B02-Can	4000	4/30	15	5.9	5.7	1.2	8.4*
Farron # 2	2B02A-Can	4000	4/30	21	8.4	6.1	0.9	9.2*
Goat Creek	18A04	3595	4/28	0	0.0	0.0	0.0	0.0
Graystoke Lake	2F04-Can	5950	4/30	28	10.2	7.8	10.0	20.3*
Monashee Pass	2E01-Can	4500	5/1	25	9.7	2.6	8.0	12.8*
Old Glory Mountain	2B03-Can	7000	5/2	61	24.7	26.8	5.5	30.5*
Snow Caps Creek	18A05	2150	4/28	0	0.0	0.0	0.0	0.0
Snow Caps Trail	18A06	2720	4/28	0	0.0	0.0	0.0	0.0
Summit G. S.	18A07	4600	4/28	4	1.4	0.6	0.0	6.3
Trapping Creek Upper	2E04-Can	4450	5/2	5.5	1.8	0.0	0.0	6.1*

Average based on 1963-77 average

* Average for years of record

SNOW DATA TO MAY 1, 1981 - APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
<u>SPOKANE RIVER</u>								
Above Burke	15B08	6100	4/29	14	4.6	6.3	4.7	19.7
Copper Ridge	16B02	4800	4/30	0	0.0	-	0.0	25.7
Forty-nine Meadows	15B03	5000	4/29	20	7.1	7.2	4.0	26.9
Granite Peak	15B13A	6000	4/29	66	23.1	28.5	15.5	47.6
Kellogg Peak +	16B05A	5560	4/30	0	0.0	-	0.0	-
Lookout	15B02	5250	4/15	65	21.2	29.2	15.3	38.6
			4/29	37	14.2	17.4	8.3	35.4
Lost Lake	15B14A	6000	4/29	82	31.4	34.7	19.3	62.5
Lower Sands Creek	16B01	3400	4/29	0	0.0	6.4	7.3	18.3
Mosquito Ridge +	16A04A	5110	4/30	50	18.6	-	4.3	-
Roland Summit +	15B05A	5200	4/30	6	2.3	-	0.0	-
Sherwin	16C01	3200	4/30	0	0.0	0.0	-	7.2
Sunset +	15B09A	5600	4/30	58	22.3	-	6.5	-
<u>OKANOGAN RIVER</u>								
Aberdeen Lake	1F01A-Can	4300	4/29	0	0.0	0.0	0.0	1.7*
Blackwall Mountain	2G03-Can	6250	4/28	65	26.9	25.0	17.4	37.8*
Bouleau Lake	2F21-Can	4580	4/26	34	11.1	6.5	5.7	13.1*
Brenda Mine	2F18-Can	4800	4/28	25	7.7	3.1	0.0	9.9*
Brookmere	1C01-Can	3200	5/1	1.6	0.8	2.7	1.2	5.6*
Enderby	1F04-Can	6250	4/30	99	42.5	31.9	29.9	42.3*
Esperon Creek Lower	2F15-Can	4400	4/26	21	6.1	2.4	0.0	9.3*
Esperon Creek Middle	2F14-Can	4700	4/26	26	8.5	4.3	0.0	12.6*
Esperon Creek Upper	2F13-Can	5400	4/26	33	11.2	8.8	4.7	18.5*
Freezeout Meadow New	20A38	5000	4/30	44	18.0	19.2	14.4	40.3
Grayback Res.	2F08-Can	5225	4/29	23	6.8	1.9	1.4	8.0*
Graystoke Lake	2F04-Can	5950	4/30	28	10.2	7.8	10.0	20.3*
Hamilton Hill	2G06-Can	4900	4/28	20	6.3	19.0	4.6	13.2*
Harts Pass	20A05A	6500	4/29	80	32.9	36.2	21.8	51.5
Isintok Lake	2F11-Can	5510	4/25	7.5	2.8	2.7	0.0	7.1*
Lightning Lake	3D02-Can	4500	4/29	11	3.9	7.9	4.1	11.5*
Lost Horse Mountain	2G04-Can	6300	5/1	16	5.2	5.0	3.8	10.5*
Loup Loup	19A07	4650	4/29	0	0.0	0.6	0.0	6.1
McCulloch	2F03-Can	4200	4/25	9.4	3.3	0.0	0.0	2.7*
Missezula Mountain	2G05-Can	5100	4/27	11	3.9	5.9	0.0	6.0*
Mission Creek	2F05-Can	6000	4/30	77	18.0	11.9	14.7	21.7*
Monashee Pass	2E01-Can	4500	5/1	25	9.7	2.2	8.0	12.8*
Mount Kobau	2F12-Can	5950	4/26	31	10.4	8.2	2.1	12.8*
Mutton Creek No. 1	19A01	5700	4/28	11	4.5	6.1	0.0	11.3
Mutton Creek No. 2SP	19A11SP	6000	4/28	-	5.6	6.6	0.0	13.9
Nickel Plate Mtn.	2G02-Can	6200	4/30	9.1	1.3	4.2	2.6	8.1*
Oyama Lake	2F19-Can	4400	4/29	0	0.0	0.0	0.0	3.1*
Postill Lake	2F07-Can	4500	4/30	17	5.4	0.5	2.7	6.6*

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1981 - APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
Rusty Creek	19A03	4000	4/28	0	0.0	0.0	0.0	0.8
Salmon Meadows	19A02	4500	4/28	5.2	2.4	4.0	0.0	6.2
Silver Star Mountain	2F10-Can	6050	5/2	55	22.0	20.2	14.6	28.3*
Summerland Reservoir	2F02-Can	4200	4/25	11	3.1	3.4	0.0	6.8*
Sunday Summit	2G01A-Can	4300	4/29	0	0.0	0.0	0.0	1.1*
Trout Creek	2F01-Can	4700	4/27	2.4	0.8	0.0	0.2	5.2*
Vaseux Creek	2F20-Can	4600	4/30	4	1.9	0.0	0.0	2.5*
White Rocks Mountain	2F09-Can	6000	4/29	37	13.6	9.6	6.9	24.8*
METHOW RIVER								
Harts Pass.	20A05A	6500	4/29	80	32.9	36.2	21.8	51.5
Loup Loup	19A07	4650	4/29	0	0.0	-	0.0	6.1
Mutton Creek No. 1	19A01	5700	4/28	11	4.5	6.1	0.0	11.3
Mutton Creek No. 2 SP	19A11SP	6000	4/28	-	5.6	6.6	0.0	13.9
Rusty Creek	19A03	4000	4/28	0	0.0	0.0	0.0	0.8
Salmon Meadows	19A02	4500	4/28	5.2	2.4	4.0	0.0	6.2
CHELAN LAKE BASIN								
Rainy Pass	20A09	4780	4/29	65	30.0	27.6	21.8	47.5
ENTIAT RIVER								
Blue Creek G. S.	20B28a	5425	4/27	72	29.5	25.5	11.9	39.9
Brief	20B19	1600	4/25	0	0.0	0.0	0.0	0.0
Entiat Meadows +	20A33a	4540	4/27	54	22.1	32.3	9.9	35.7
Entiat River Trail +	20A34a	3325	4/27	0	0.0	-	0.0	3.0
Four Mile Ridge +	20B27a	6800	4/27	48	19.7	26.4	4.0	38.5
Fox Camp +	20A36a	6510	4/27	38	15.6	58.9	19.5	64.1
Pope Ridge	20B20	3540	4/29	0	0.0	7.6	0.0	9.8
Pugh Ridge +	20A32a	6725	4/27	61	25.0	26.8	11.2	30.8
Shady Pass	20A37	6200	4/29	39	16.0	23.0	2.2	31.6
Snow Brushy +	20A35a	3910	4/27	45	18.4	8.8	6.9	29.4
Tommy Creek +	20B21a	4900	4/27	28	11.5	7.0	0.0	21.7
WENATCHEE RIVER								
Berne-Mill Creek	21B23	2925	4/29	19	7.7	14.2	6.0	23.9
Berne-Mill Creek New	21B41SP	3240	4/29	0	0.0	9.9	0.0	19.8
Blewett Pass No. 2	20B02	4270	4/13	16	4.8	11.2	2.2	15.3
			4/28	0	0.0	4.6	0.0	10.8
Stevens Pass	21B01	4070	4/14	66	22.8	44.5	25.6	56.3
			4/29	41	18.2	39.7	22.9	57.5
Stevens Pass Sand Shed	21B45	3700	4/14	37	12.3	29.6	12.2	38.0
			4/29	11	4.7	20.4	7.6	37.3

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1981 - APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
<u>SQUILCHUCK CREEK</u>								
Beehive Springs	20B03	4400	4/28	0	0.0	0.0	0.0	2.2
Scout-A-Vista	20B04	3400	4/28	0	0.0	0.0	0.0	0.3
<u>STEMILT CREEK</u>								
Jump-Off	20B08	4450	4/29	0	0.0	0.0	0.0	3.3
Stemilt Slide	20B06	5000	4/28	0	0.0	2.4	0.0	7.8
Upper Wheeler	20B07	4400	4/28	0	0.0	0.0	0.0	1.3
<u>COLOCKUM CREEK</u>								
Colockum Creek Upper	20B22	5300	4/29	0	0.0	0.0	0.0	10.8
Colockum Creek Lower	20B23	4300	4/29	0	0.0	0.0	0.0	2.8
Trough # 2	20B25SP	5310	4/29	0	0.0	7.5	0.0	New
<u>YAKIMA RIVER</u>								
Big Boulder Creek	21B09	3200	4/14	10	1.3	-	-	-
			4/30	0	0.0	0.0	0.0	10.9
Blewett Pass No. 2	20B02	4270	4/13	16	4.8	11.2	2.2	15.3
			4/28	0	0.0	4.6	0.0	10.8
Bumping Lake	21C08	3450	4/13	5.4	0.5	18.0	0.0	13.8
			5/1	0	0.0	6.7	0.0	10.2
Bumping Lake New	21C36	3400	4/13	7.6	1.6	20.0	0.0	19.6
			5/1	0	0.0	10.5	0.0	15.2
Cayuse Pass	21C06	5300		Late Report	65.0	43.4	98.1	
Corral Pass	21B13	6000	4/27	52	22.2	28.0	15.6	42.6
Fish Lake	21B04	3371	4/14	27	9.8	-	-	-
			5/1	Not Measured	15.6	2.0	28.0	
Green Lake	21C10	6000	4/10	52	19.0	-	-	-
			4/29	34	17.1	-	-	-
Joe Lake +	21B46a	4624	4/15	132	47.3	-	-	-
			4/30	87	39.2	56.2	40.0	67.0
Lake Cle Elum	21B14M	2200	4/13	Trace	0.0	-	-	-
Lemah Creek +	21B47a	3327	4/15	54	19.3	-	-	-
			4/30	0	0.0	21.6	14.0	40.3
Morse Lake	21C17	5400	4/14	105	37.5	-	-	-
			4/28	74	32.4	48.5	18.0	61.9
Olallie Meadows	21B02	3625	4/14	62	16.2	35.2	20.2	55.1
			4/27	27	12.3	26.6	15.9	53.4
Satus Pass	20D01	4030	5/4	0	0.0	-	-	-
Stampede Pass SP	21B10	3860	4/16	50	14.5	42.4	12.0	42.9
			4/23	35	16.7	27.8	6.9	43.4
Tunnel Avenue	21B08	2450	4/13	12	3.3	16.6	0.0	23.9
			5/1	0	0.0	5.4	0.0	17.5
Van Epps Pass +	20B26a	5925	4/15	94	33.6	-	-	-
			4/30	62	27.9	48.5	21.8	56.1

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1981 - APPENDIX 5

SNOW	DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
				Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year	1977
	NAME	Number	Elevation						Avg. #
<u>YAKIMA RIVER (Cont.)</u>									
Waptus Lake +	21B49a	3024		4/15	53	19.0	-	-	-
				4/30	0	0.0	21.6	12.9	38.9
White Pass (E. Side)	21C28	4500		4/13	33	7.5	25.6	6.3	26.9
				5/1	0	0.0	21.6	0.0	27.6
<u>AHTANUM CREEK</u>									
Green Lake	21C10	6000		4/10	52	19.0	-	-	-
				4/29	34	17.1	-	-	-
<u>LOWER COLUMBIA DRAINAGES</u>									
<u>ASOTIN CREEK</u>									
Spruce Springs	17C04	5700		4/27	22	8.2	14.7	1.8	24.8
<u>MILL CREEK</u>									
High Ridge	18D19	4150		4/30	28	11.9	11.9	-	27.0
<u>KLICKITAT RIVER</u>									
Satus Pass	20D01	4030		5/4	0	0.0	-	-	3.9
<u>LEWIS RIVER</u>									
Lone Pine Shelter	21C26	3800		5/1	SNOTEL	13.9	24.2	15.9	48.0
Marble Mountain	22C05	3200		5/1	SNOTEL	0.9	0.0	4.9	33.6
Plains of Abraham	22C01	4400		5/1	SNOTEL	4.6	41.0	32.9	77.4
Spencer Meadow	21C20	3400		5/1	SNOTEL	7.3	0.0	5.4	19.0
<u>COWLITZ RIVER</u>									
Cayuse Pass	21C06	5300			Late Report	65.0	43.4	98.1	
White Pass (E. Side)	21C28	4500		4/13	33	7.5	25.6	6.3	26.9
				5/1	0	0.0	21.5	0.0	27.6
<u>PUGET SOUND DRAINAGE</u>									
<u>WHITE RIVER</u>									
Cayuse Pass	21C06	5300			Late Report	65.0	43.4	98.1	
Corral Pass	21B13	6000		4/27	52	22.2	28.0	15.6	42.6
Morse Lake	21C17	5400		4/14	105	37.5	-	-	-
				4/28	74	32.4	48.5	18.0	61.9
<u>GREEN RIVER</u>									
Cougar Mountain SP	21B42SP	3200		4/27	0	0.0	0.0	-	20.7
Snowshoe Butte SP	21B43SP	5000		4/27	64	25.2	42.9	21.0	67.7
Stampede Pass SP	21B10	3860		4/16	50	14.5	42.4	12.0	42.9
				4/23	35	16.7	27.8	6.9	43.4

Average based on 1963-77 average

+ Snow water equivalent estimated from aerial stadia observation

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SNOW DATA TO MAY 1, 1981 - APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE	NAME	Number	Elevation	THIS YEAR			PAST RECORD		
				Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #
SNOQUALMIE RIVER									
Olallie Meadows	21B02	3625	4/14 4/27	62 27	16.2 12.3	35.2 26.6	20.2 15.9	55.1 53.4	
SKYKOMISH RIVER									
Stevens Pass	21B01	4070	4/14 4/29	66 41	22.8 18.2	44.5 39.7	25.6 22.9	56.3 57.5	
Stevens Pass Sand Shed	21B45	3700	4/14 4/29	37 11	12.3 4.7	29.6 20.4	12.2 7.6	38.0 37.3	
SKAGIT RIVER									
Beaver Creek Trail	21A04	2200	4/29	0	0.0	0.0	0.0	7.3	
Beaver Pass	21A01	3680	4/29	13	6.3	19.2	6.6	34.5	
Brown Top Ridge +	21A28a	6000	4/29	114	46.8	50.2	31.0	74.7	
Devils Park	20A04	5900	4/29	82	34.4	34.6	22.1	50.4	
Freezeout Creek Trail	20A01	3500	4/30	0	0.0	1.7	0.4	10.2	
Freezeout Meadows New	20A38	5000	4/30	44	18.0	19.2	14.4	40.3	
Granite Creek	21A29A	3500	4/29	4.4	1.7	2.9	2.4	18.2	
Harts Pass	20A05A	6500	4/29	80	32.9	36.2	21.8	51.5	
Klesilkwa	3D03A-Can	3700	4/29	0	0.0	0.0	0.0	7.2*	
Lightning Lake	3D02-Can	4000	4/29	11	3.9	7.9	4.1	11.5*	
Meadow Cabins	20A08	1900	4/29	0	0.0	0.0	0.0	1.9	
New Hozomeen Lake	21A30	2800	4/30	0	0.0	0.0	0.0	10.5	
New Tashme	3D01A-Can	2500	4/29	0	0.0	0.0	0.0	3.2*	
Rainy Pass	20A09	4780	4/29	65	30.0	27.6	21.8	45.7	
Thunder Basin	20A07	4200	4/29	19	7.8	10.0	10.5	26.2	
BAKER RIVER									
Dock Butte	21A11A	3800	4/14	97 Late Report	37.0 52.0	- 35.0	- 79.3	79.8 79.3	
Easy Pass	21A07A	5200	4/14	159 Late Report	60.0 63.0	- 42.2	- 92.1	92.1 97.6	
Jasper Pass	21A06A	5400	4/14	183 Late Report	70.0 71.0	- 48.9	- 99.8	100.8 87.4	
Marten Lake	21A09A	3600	4/14	125 Late Report	48.0 53.0	- 43.7	- 87.0	87.4 87.0	
Mount Blum +	21A18a	5800	4/14	153 Late Report	58.0 57.0	- 40.3	- 76.1	79.6 76.1	
Panorama New	21A26	4300	4/11 5/3	101 56	31.8 25.3	- -	36.3 35.2	79.6 88.3	
Rocky Creek	21A12A	2100	4/14	25 Late Report	10.0 0.0	- 8.8	- 28.4	32.6 28.4	
Schreibers Meadow	21A10A	3400	4/14	72 Late Report	27.0 30.0	- 32.4	- 70.5	67.8 70.5	

Average based on 1963-77 average

* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

SNOW DATA TO MAY 1, 1981 - APPENDIX 7

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	Number	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	1977	Avg. #

BAKER RIVER (Cont.)

S. F. Thunder Creek	21A14A	2200	4/14	12	5.0	-	-	4.5
Watson Lakes	21A08A	4500	4/14	Late Report 110	42	0.0 -	0.0 -	2.0 78.9
				Late Report		45.0	35.7	77.7

NOOKSACK RIVER

Panorama New	21A26	4300	4/11	101	31.8	-	36.3	79.6
			5/3	56	25.3	51.0	35.2	88.3

O L Y M P I C P E N I N S U L ADUNGENESS RIVER

Deer Park	23B04	5200	4/29	9	3.7	14.3	7.8	24.2
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MORSE CREEK

Cox Valley	23B14	4500	4/26	38	15.1	27.9	16.5	45.3
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ELWHA RIVER

Hurricane	23B03	4500	4/26	18	6.5	10.1	8.5	28.2
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Average based on 1963-77 average

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Ministry of the Environment, Water
Investigations Branch, Victoria, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

*Other organizations and individuals furnish valuable information for
snow survey reports. Their cooperation is gratefully acknowledged.*



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*"The Conservation of Water begins
with the Snow Survey"*